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P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

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AN, SHAWN S	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 13

Application Number: 09/494,670
Filing Date: 1/31/2000
Appellant(s): Mary Benoit

Steve Cha
For Appellant

EXAMINER'S ANSWER

This is in response to Appellants' brief on appeal filed on 3/8/04 as Paper 12.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement is present identifying that there are no related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellants' statement in the brief that claims 1-5, 7, 8, 10, and 11 do not stand or fall together is agreed with by the Examiner.

(8) Claims Appealed

The copy of the appealed claims contained in the appendix to the brief is correct.

(9) Prior art of record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

Ahanger et al (SPIE Proceedings series, 1995)	
Altunbasak et al (6,389,168 B2)	5/14/2002
Miyatake et al (5,267,034)	11/30/1993
Jeannin (5,929,940)	7/27/1999

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. Claims 1, 5, 7-8, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al (SPIE Proceedings series, 1995) in view of Altunbasak et al (6,389,168 B2).

Regarding claims 1 and 10, Ahanger et al discloses a computer program product (page 5, lines 4-12) and a video indexing device for receiving a video scene having multiple frames and forming a descriptor (abs.) to represent motions of a camera within <u>any</u> sequence of <u>one</u> or more frames of the video scene, wherein a computer program and the motions comprising at least <u>one</u> of the following basic motion types:

fixed, panning, tracking, tilting, booming, zooming, dollying, and rolling, or any combination of at least two of these operations (Fig. 1),

wherein each of the motion types, except fixed, is oriented and subdivided into two components that stand for two different directions (Fig. 1, panning, <u>arrow left (one direction) or arrow right (another direction)</u>; booming, <u>arrow up (one direction) or arrow down (another direction)</u>; and zooming, <u>arrow in (one direction) or arrow out</u> <u>(another direction)</u>).

Ahanger does not specifically disclose an histogram having a dependent variable with the values that each correspond to a respective predefined size of displacement.

However, Altunbasak et al teaches calculating motion histogram based on camera operations (Fig. 11, 100; col. 10, lines 15-26).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor for the representation of motion of a camera in a video sequence as taught by Ahanger et al to incorporate the concept of calculating motion histogram having a dependent variable with the values that each correspond to a respective predefined size of displacement as taught by Altunbasak et al as a specific tool to identify such camera operations so that an user can retrieve video frames that include a query video object.

Regarding claim 5, Ahanger et al discloses the description being hierarchical, by means of a representation of the motion handles at any temporal granularity (Fig. 2).

Regarding claim 7, Ahanger et al discloses an image retrieval system comprising a camera (Fig. 1) for the acquisition of video sequences, a video indexing device and a data base (**1 INTRODUCTION**, 1st para., 3rd para., a data base system), a graphical user interface (for carrying out a requested retrieval from the database, and a video monitor for displaying the retrieved information (**4, QUERY FORMULATION**), wherein an indexing operation is based on categorization resulting from the use of the descriptor of claim 1 (**4, QUERY FORMULATION**, last two para.).

Regarding claims 8 and 11, Altunbasak et al discloses the histogram having an independent variable with values configured to each correspond to a different one of the motion types (col. 10, lines 15-26).

II. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al and Altunbasak et al as applied to claim 1 above, and further in view of Miyatake et al (5,267,034).

Regarding claim 2, the combination of Ahanger et al and Altunbasak et al does not specifically disclose motion type having its own speed described in an unified way by choosing a common unit.

However, Miyatake et al discloses motion type having its own speed described in an unified way by choosing a common unit (col. 8, lines 17-45).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor for the representation of motion of a camera in a video

sequence as taught by Ahanger et al to incorporate the concept of motion type having its own speed described in an unified way by choosing a common unit as taught by Miyatake et al so as to accurately measure or calculate the speed of motion type for analysis.

III. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al, Altunbasak et al, and Miyatake et al as applied to claim 2 above, and further in view of Jeannin (5,929,940).

Regarding claim 3, the combination of Ahanger et al, Altunbasak et al, and Miyatake et al does not particularly disclose motion type speed being represented by a pixel-displacement value working at the half-pixel accuracy.

However, Jeannin teaches conventional method of motion estimation comprising motion type speed represented by a pixel-displacement value working at the half-pixel accuracy (Fig. 2, col. 8, lines 23-27). Furthermore, half-pixel motion vector is frequently used in current standard for predicted motion system, such as in MPEG and/or H.263.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor for the representation of motion of a camera in a video sequence as taught by Ahenger et al to incorporate the well known concept of motion type speed being represented by a pixel-displacement value working at the half-pixel accuracy as taught by Jeannin as an efficient/conventional method to estimate the motion vectors between the two pixels.

Regarding claim 4, the Examiner takes official notice that it is considered quite obvious and well known to simply round the speed (motion vector) to the closest half-pixel value, and multiply by 2, in order to obtain an integer value, thereby working with the simple (not having decimal) numbers. The above information (rounding and multiplying by 2) is unquestionably well known and capable of verification through the elementary mathematical textbooks.

Allowable Subject Matter

IV. Claims (6, 9), and 12 are objected to as being dependent upon a rejected base claims 1 and 10, respectively, but would be allowable: if claim 6 or claim 9 is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; and if claim 12 is rewritten in independent form including all of the limitations of the base claim 10 and any intervening claims

Dependent claims 6, 9, and 12 recite novel feature wherein the histogram is configured according to the equation:

T type of motion = (N type of motion / N)

(Refer to the equation in claims 6, 9, 12)

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

(11) Response to Argument

Appellant's arguments filed on 3/8/04 in the brief of Paper 12 have been fully considered but they are not persuasive. The Appellants present arguments contending the Examiner's rejections of claims 1, 5, 7-8, and 10-11 under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al in view of Altunbasak, and claim 2 under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al and Altunbasak et al as applied to claim 1 above, and further in view of Miyatake et al, and claims 3-4 under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al, Altunbasak et al, and Miyatake et al as applied to claim 2 above, and further in view of Jeannin as stated in the Grounds of Rejection.

However, after careful consideration of the arguments presented, the Examiner must respectively disagree for the reasons that follow and submit to the board that the rejection be sustained.

A) The Appellant presents a first argument that the Ahenger's reference does not disclose or suggest "... forming a descriptor that is <u>configured</u> to represent ... motion of a camera ... within <u>any</u> sequence of <u>one</u> or more frames of the video scene ..."

The Examiner respectively disagrees. In response to the argument directly above, Ahenger clearly discloses forming a descriptor (Fig. 1) that is configured to represent motion of a camera (abs.) within any sequence of one or **more frames** of the video scene (**3 VIDEO ATTRIBUTES**).

Appellant asserts that if any ...Ahanger descriptor can be ... such a descriptor could validly be regarded as disclosed only for multiple frames, not for a single frame (Appellant: page 7, lines 7-9).

However, given the claim limitation of one or more frames, the Ahanger reference only has to meet either the one or the other more frames. Since Ahanger discloses within any sequence of the frames of the video scene (Video Attributes: Fig. 1), the amended claim limitation as above has been clearly met.

B) The Appellant presents another argument contending that Ahenger or Altunbasak makes no disclosure or suggestion wherein a motion type that is oriented and subdivided into two components that stand for two different directions.
In response, Ahenger clearly discloses a motion type that is oriented and subdivided into two components that stand for two different directions (Fig. 1, panning (components), arrow left (one direction) or arrow right (another direction); booming (components), arrow up (one direction) or arrow down (another direction); and zooming (components), arrow in (one direction) or arrow out (another direction)).

C) The Appellant presents another argument claiming that Miyatake's reference shows subdividing in " ..., in or out." ... ... It is unclear, ... because Fig. 1 of Miyatake has no arrows ... ... (Appellant: page 10, lines 6-11).

In response, the Examiner has no clue as to why Appellant is arguing about Miyatake's Fig. 1, because the recited claim limitation "**subdividing**" has been discussed directly above by Ahenger's reference, not Miyatake's refererence.

Therefore, this argument is considered moot. Furthermore, Examiner would like clarification on this particular argument.

D) The Appellant presents a final argument challenging the Official notice in claim 4 (Appellant: page 11, lines 13-18).

In response, the Examiner has taken official notice that it is considered quite obvious and well known to simply round the speed (motion type, motion vector) to the closest half-pixel value, and multiply by 2, in order to obtain an integer value, thereby working with the simple integer (not having decimal) numbers. The above information (rounding and multiplying by 2) is unquestionably well known in the art of mathematics and capable of verification through the elementary math textbooks.

Upon a further demand, if necessary, the Examiner can provide a prior art.

For the reasons as discussed above, it is believed that the rejection should be sustained.

Respectively Submitted:

Shawn An
Primary Patent Examiner
Art Unit 2613

Richard Lee
Primary Patent Examiner
Art Unit 2613

Gims Phillipe
Primary Patent Examiner
Art Unit 2613

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Russell Gross, Registration No. 40,007
US PHILIPS CORPORATION
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9608
Fax: (914) 332-0615